

29. The autothermal reformer assembly of Claim 25 wherein said noble metal catalyst is a catalyst selected from the group consisting of platinum, palladium and rhodium, and mixtures thereof.

30. The autothermal reformer assembly of Claim 13 wherein said foam catalyst bed includes a first region which contains a noble metal catalyst and a calcium oxide catalyst, and a subsequent region which does not contain calcium oxide and does contain said noble metal catalyst.

31. The autothermal reformer assembly of Claim 30 wherein said noble metal catalyst is selected from the group consisting of platinum, palladium and rhodium.

32. The autothermal reformer assembly of Claim 13 wherein said foam catalyst bed includes at least one ceramic foam support body.

33. The autothermal reformer assembly of Claim 13 wherein said catalyst bed is cylindrical in shape.

34. The autothermal reformer assembly of Claim 13 wherein said fuel gas inlet passage contains a fuel gas/steam mixture.

35. The autothermal reformer assembly of Claim 13 wherein said air inlet passage contains an air/steam mixture.

36. A hydrocarbon fuel gas autothermal reformer assembly comprising:

- a) a cylindrical monolithic open cell foam catalyst bed, said foam catalyst bed including a metal support selected from the group consisting of stainless steel, nickel alloys and iron-aluminum alloys, said catalyst bed including an inlet end and an outlet end;
- b) a fuel gas/steam mixture inlet passage; and
- c) a fuel gas reforming catalyst deposited in said cylindrical foam catalyst bed.

37. A hydrocarbon fuel gas autothermal reformer assembly comprising:

- a) a monolithic open cell foam catalyst bed, said foam catalyst bed including a metal support selected from the group consisting of stainless steel, nickel alloys and iron-aluminum alloys, said catalyst bed including an inlet end and an outlet end, an inlet portion of said catalyst bed being provided with a noble metal-promoted catalyst which is operable to combust a portion of the fuel gas at a temperature of about 500°F thereby enabling start up of the reformer assembly while inhibiting carbon deposition in catalyzed cells of said foam;